

EXHIBIT 6

FILED UNDER SEAL

Page 1

* * * CONFIDENTIAL - ATTORNEYS' EYES ONLY * * *

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

NAULA NDUGGA, ON BEHALF)
OF HERSELF AND SIMILARLY)
SITUATED WOMEN,)

Plaintiff,)

vs.)

No.)

20-cv-07464 (GHW)

BLOOMBERG L.P.,)

Defendant.)

-----)

October 22, 2024

10:02 a.m.

Deposition of DAVID NEUMARK, held at
the offices of Proskauer Rose LLP, 11 Times
Square, New York, New York, before Laurie A.
Collins, a Registered Professional Reporter
and Notary Public of the State of New York.

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2 lingo, which means, you know -- well, that's what
3 it means.

4 For Blacks for periods two and three --
5 that is, U.S. '17-'21 and U.S. 2021 -- there is
6 estimated roughly 6 percent shortfall, and that's
7 significant at the 10 percent level but not the 5
8 percent level.

9 Q. And the 10 percent level is a level
10 that's not traditionally accepted by labor
11 economists or by courts as statistically
12 significant. Do you agree with that?

13 A. No, I don't. I don't agree with that.
14 I mean, the courts -- I think the most often cited
15 case I think is Hazelwood, and I think that's a
16 fair statement of what that says.

17 There's some other cases I cite in my
18 report -- I think it's Footnote 54 -- about
19 reasons why you might not want to always skew to
20 that or the only bright line that matters.

21 Labor economists are, you know -- I
22 hope we're more sophisticated statisticians, you
23 know. 5 percent significance level is the
24 standard. What -- what that means -- there's
25 something called the P value, which is the

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2 significance level. So if the significance level
3 is exactly 5 percent, the P value is .05.

4 We report the T -- here the T
5 statistics, sometimes the P values, and, you know,
6 5 percent significance is somewhat -- you hold
7 that result with somewhat more confidence with 7
8 for or 8 percent or 9 percent, and you hold it
9 with a lot more confidence than 20 percent
10 significance.

11 But I will say there are many, many
12 papers in labor economics -- including my own but
13 definitely not just my own -- where people talk
14 about results that are significant at 10 percent
15 level and draw conclusions.

16 Q. Did you conduct any analysis on whether
17 there's a pay disparity based on an intersection
18 of race and gender, that is, a pay disparity for
19 Black women?

20 A. I have not.

21 Q. Were you asked to do that?

22 A. To my recollection, no.

23 Q. Did you ever consider conducting such
24 an analysis?

25 A. Not in this case. I'm writing a paper

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2 haven't seen that goes to my opinions. Certainly
3 when you're starting and learning what's in the
4 data, you run things and you say, Oh, we have that
5 wrong, we fix it, this variable doesn't make
6 sense, we look at it and there's something that
7 can't be negative has negative values or whatever.

8 So there's preliminary versions of
9 output files on the way, but those are just being
10 corrected in the code and refined as we go.

11 But, as I said, back to our discussion
12 right at the outset, there is simply no reason to
13 not report a result that would be an obvious thing
14 to do if it didn't support my conclusion, because
15 defense experts are smart people too and will
16 figure that out. At least that's my operating
17 assumption at any rate.

18 Q. You did no analysis of whether there
19 was any disparity in starting salaries between
20 female and male employees; is that right?

21 A. There was -- I know that was in the
22 original complaint, but to the best of my analysis
23 there was no data -- the issue there was the issue
24 of starting pay to prior pay, and there was no
25 data retained on prior pay that was asked about,

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2 to my understanding, although I can't confirm that
3 because I have never seen any data.

4 Q. So you're saying you didn't have the
5 data to do an analysis of starting pay as a
6 function of prior pay; is that right?

7 A. Correct.

8 Q. Did you consider starting pay as a
9 control variable in the analysis that you did do?

10 A. No.

11 Q. Why not?

12 A. That would be a bad idea.

13 Q. Why is that?

14 A. So I have -- I mean -- the allegations
15 in this case -- and, again, I have no opinion on
16 whether it's true or not because I don't have the
17 data, but just to state them -- are that Bloomberg
18 asked about prior pay.

19 I think we all know -- maybe you
20 disagree -- that in general when you ask about
21 prior pay women's response is lower because women
22 are paid less in the labor market. It doesn't
23 matter that this case why discrimination or not.

24 And therefore if companies are kind of
25 matching or prior pay plus 5 percent or something,

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2 starting pay for women is going to be lower than
3 otherwise similar men. In other cases I have
4 worked, I have certainly see that. Obviously that
5 evidence does not pertain to this case, but you
6 asked for my explanation.

7 So if starting pay reflects pay
8 discrimination, then it's what we call a bad
9 control or what you call tainted variable. You're
10 putting on the right-hand side -- you know,
11 suppose there's a case where women come in lower
12 than otherwise comparable men and that gap in
13 percentage terms just never goes away, you know,
14 just random variation, but on average that
15 persists because raises are based on men and women
16 get the same ratings, raises are a given
17 percentage.

18 Well, then, ten years later on average
19 there's going to be the same gender pay gap. Then
20 if you put in the control, you might say you've
21 explained it, but what you've actually done is
22 shown that the starting pay gap is driving the
23 current pay gap. So it's a bad control.

24 You put in -- you don't want to put in
25 something on the right-hand side or as an

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2 independent variable that can itself reflect
3 discrimination.

4 Q. There are also nondiscriminatory
5 explanations for differences in starting pay;
6 right?

7 A. Of course.

8 Q. All kinds of things; correct?
9 Bargaining is one reason that a female's starting
10 pay might be less; right?

11 A. Could be.

12 Q. Willingness to compete?

13 A. People -- there are some -- there is
14 some evidence of that, not so much on pay, but,
15 yeah, willingness to compete.

16 Q. Preferences for workplace amenities and
17 flexibility?

18 A. Just to be clear, I'm saying -- I'm not
19 saying I know what direction this is going, but
20 they can affect starting pay.

21 Q. That's all I'm asking is whether they
22 could affect starting pay.

23 A. Yes.

24 Q. And other factors such as college major
25 or the nature of prior experience, those could

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2 influence starting pay as well?

3 A. Yes.

4 Q. None of those have anything to do with
5 gender, obviously; right?

6 A. Well, they might be related to gender.

7 Q. Right, but they're not related to
8 discrimination on the basis of gender; right?

9 A. Not by the company doing the hiring.
10 Fair enough, right.

11 Q. And so you can't allow the possibility
12 that differentials in starting pay at Bloomberg
13 were caused by nondiscriminatory factors as
14 opposed to being a tainted control variable;
15 right?

16 A. I can't do any analysis to the question
17 in this case. In other cases that's not been the
18 case. But I simply -- I can't answer the
19 question. What I would want to answer the
20 question -- so even -- you know -- would be --
21 would be starting pay data and then -- and then
22 you wouldn't have all the things you just
23 mentioned, but some of those things are
24 obtainable.

25 I have in past cases gone to LinkedIn

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2 and constructed prior experience measures. It
3 doesn't get prior pay starting pay question,
4 because my understanding is those data were simply
5 not retained.

6 But regardless, no reasonable labor
7 economist would put in starting pay as a control
8 in testing for discrimination, because if there is
9 discrimination, starting pay can reflect it as
10 well.

11 So I have seen no evidence that -- and
12 Dr. Martin hasn't presented any -- that different
13 let's call them broadly catchall for what you said
14 differences in what people did or bring to the
15 table before they started Bloomberg account for
16 the gender differences.

17 Q. Did you perform any analysis of whether
18 there were differences in the performance ratings
19 of male and female class members?

20 A. Well, I -- the most important thing I
21 do is control for performance ratings, which at
22 the end of the day is what you really care about.
23 I did look at the overall description recently for
24 the two class periods: New York '17-'20 and U.S.
25 21. That's not reported anywhere so...

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2 I've done on hiring discrimination.

3 Q. Hiring, not pay?

4 A. Correct.

5 Q. Have you done any analysis of
6 whether -- of the age effects with respect to pay?

7 A. I have done a lot of work on what we
8 call the age earnings profile in the context of
9 models of discrimination. That's a long time ago.
10 And I don't think I ever did anything in relation
11 to gender.

12 Pay is -- unlike every other dimension
13 of discrimination -- race, ethnicity, et cetera,
14 gender -- age is not one where people focus on
15 pay, because older people tend to be paid more,
16 not less.

17 There's other indicators of potential
18 discrimination. Older workers who lose their jobs
19 have a lot harder time finding a job, unemployment
20 spells are longer. But pay is not usually the
21 focus of that research because the prima facie
22 evidence tends to go the other way, for many other
23 reasons.

24 Q. Did you consider here that a disparity
25 might be attributable to age rather than to

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2 A. What I mean -- what I mean there is
3 that's a -- that is the shorthand phrase. If you
4 read a paper in labor economics -- not -- I can't
5 say everywhere, obviously; there's a lot of
6 paper -- when people say statistically significant
7 without saying the P value is at the 5 percent
8 level or the 10 percent level, that's -- I mean,
9 that's almost always what they mean.

10 If they're careful, they will at least
11 the first time they use that phrase define what
12 they mean. So there probably are cases where
13 someone says, I might be referring to the 10
14 percent level, but I'm going to keep saying that.

15 But I would say in my writing -- I
16 didn't review this question for this deposition,
17 but I would say you would probably find many cases
18 where at least after the first time where I define
19 the significance level I would use statistically
20 significant to mean the 5 percent level.

21 But I would also many times describe
22 results as statistically significant, but I would
23 specify at the 10 percent level just to -- just
24 for clarity.

25 Q. And as you mentioned before, the

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2 Hazelwood case talks about two standard deviations
3 as being the necessary standard for statistical
4 significance as a legal matter; is that right? Is
5 that your understanding?

6 ATTORNEY WEBBER: Just objection for
7 the record. This is beyond the scope of
8 his -- if you're asking for a legal opinion,
9 that's beyond the scope of his proffered
10 expertise.

11 A. I was just reading here whether what's
12 in parentheses is a quote, and it's not. So I
13 don't want to say what -- I don't want to look at
14 this and claim to know -- remember what it says
15 exactly.

16 But that is my understanding, that when
17 people -- and I have done it in other reports --
18 are referring to kind of aware of the 5 percent
19 statistical significance level comes from as a
20 common criterion in this kind of -- this kind of
21 work.

22 If that's the case, people refer -- I
23 will not claim to have reviewed, you know, all the
24 cases about this by any means. There's a couple
25 others here I cite which are you might call

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2 exceptions just to indicate that it's not a --
3 it's not a sort of -- it's not -- as I said
4 before, it's not an either/or; it's a standard
5 that people use.

6 There's no -- there's no -- there's no
7 statistical reason that we should -- that we
8 didn't settle on 6 percent or 7 percent or 8
9 percent. We settled on 5 probably because it
10 means a -- I don't know -- a 1 in 20 chance that
11 we could have found a result where there's no
12 result sounds more natural than a 1 in 17.8
13 chance.

14 But there's no -- there's no scientific
15 reason it's a standard and these things happen in
16 all kinds of research.

17 Q. It's not a scientific standard, but it
18 is a legal standard, as you understand it;
19 correct?

20 A. My understanding is Hazelwood refers to
21 that, and there are some other examples cited here
22 that make exceptions.

23 Look, I'm going not the one -- I'm not
24 the one deciding -- adjudicating the case. I'm
25 telling you that -- I know -- I don't know

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2 comprehensively what the courts say, but I am
3 giving you some things here what courts say.

4 I do know comprehensively and have
5 expertise in what labor economists do. As I said,
6 5 percent significance is stronger than 10 percent
7 significance, but we don't ignore results
8 significant at the 10 percent level.

9 I would also point out that there's
10 a -- there's a way of thinking about evidence
11 which is a little hard to summarize in a single
12 P value or a single significance level of one
13 estimate, and that's the phrase -- and I think I
14 used before -- robustness.

15 You know, there's a lot -- there's a
16 lot of versions of the pay regressions in my
17 paper -- in my paper -- in my report. There's --
18 you know, there's the four different periods.
19 There's many different specifications. There's
20 now more because you have the supplemental tables.
21 I don't know the count but more than 50, I think.

22 Researchers look at the totality of the
23 evidence in deciding what conclusion to draw. As
24 I said, if in most of those specifications there
25 was not a significant result and there were --

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2 let's say at the 5 percent level and there were a
3 couple that were, we probably wouldn't be sitting
4 here. Or at least I wouldn't be sitting here; you
5 might be sitting here.

6 In this case and the analysis most -- a
7 lot of the results -- first of all, every single
8 estimate except for this one analysis which I
9 don't think is well motivated, just looking at job
10 profiles with the word "producer," but all of the
11 analysis, the full data, every single estimate is
12 negative and a very high share of significance at
13 the 5 percent level and many more at the 10
14 percent level.

15 I am sure that any -- I can't be sure
16 but I'm confident that any reasonable labor
17 economist would say there's a robust relationship
18 here of low pay for women.

19 Q. Did you select the cases that appear in
20 Footnote 54?

21 A. No, I asked -- my recollection is I
22 just -- I -- the Hazelwood cite I used in other
23 reports, and I just asked for suggestions of other
24 cases that might say different things. And those
25 were provided to me, and then I kind of looked at

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2 deposition. And I think it ends there.

3 Q. All right. So the conclusion that the
4 compensation process and the ratings process are
5 highly centralized is based on information you
6 cite in paragraphs 27 and 28. Is that your
7 testimony?

8 A. I believe it's all there unless --

9 Q. I'd like a complete answer --

10 A. Okay. Sure.

11 Q. -- so take as much time as you need.

12 A. Okay. So...

13 (Pause.)

14 A. So I talk about business units in
15 paragraph 29 not having different compensation
16 policies and practices. I talk about cost centers
17 in paragraph 30 not playing a role in compensation
18 guidelines although playing a role in amounts --
19 or being related to amounts available for raises.
20 I think after that I get into families and all and
21 horizontal job classification, so that's not about
22 that.

23 So I believe that is all, because after
24 that I start to describe my regression.

25 Q. All right. So the basis for the

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2 It would be very hard to know how to
3 sort of compare and contrast those across people
4 and quantify you know productivity measure based
5 on that.

6 Q. You do understand that the audit logs
7 that we're talking about related to changes for
8 compensation and not performance evaluations;
9 right?

10 A. Yes, yes, yes. But I would -- I would
11 have thought it would be, hey, I think this person
12 should get more or less and here's why, which I
13 might think would be something about -- I mean, I
14 don't know what other reason people would write
15 down that I think they deserve more for this
16 reason. Presumably it has something to do with
17 how you are as an employee or some dimension.

18 Q. You could see in the logs -- even if
19 you couldn't or didn't think you should analyze
20 the text comments, you could see the direction of
21 the changes that were being made and compare that
22 to the gender of the employee whose number was
23 changing; right?

24 A. Yes, and Martin actually does some of
25 that.

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2 Q. Yes. You did not?

3 A. I did not, no.

4 Q. Why not?

5 A. I was -- I'm focused on what people got
6 paid in relation to their gender. I'm not trying
7 to explain the whole path of adjustment as to how
8 one got there. And I'm not sure -- I'm not sure
9 what that tells me, the fact that -- I believe she
10 says a greater share of the upward adjustments
11 were for women than men, but that doesn't tell me
12 anything about where I end up, because who knows
13 where I started.

14 Q. Does your report take a position on
15 what causes the disparities that you identify?

16 A. So I can't see intent. I can't measure
17 intent. I can -- I can -- literally what I can do
18 is estimate a statistical relationship between pay
19 and gender, controlling for the other factors in
20 my model to net out the influence of -- if there
21 were gender differences in education and tenure,
22 job profiles, et cetera, cost centers.

23 You know, all one can ever say from
24 data is the data are consistent with
25 discrimination in the sense that -- go back to I

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2 Sullivan, member of the global compensation team
3 who supported News, also testifies repeatedly to
4 the primary decision-making about compensation
5 exercised by Mr. Gregori.

6 Again, not quantifying, agreeing. But
7 that's an example. Strongly worded, although not
8 a quote; that's my language, I agree.

9 Q. Paragraph 33 carries over to page 21,
10 if you would go to page 21. In talking about peer
11 groups, in the middle of the paragraph right after
12 the reference to Note 96, there's a sentence that
13 says, I cannot identify statement of the
14 underlying logic in creating peer groups; right?

15 A. I see that, yes.

16 Q. Is that one of the reasons that you
17 don't include peer group in the main regression
18 analysis?

19 A. No, no. The main reason is I don't
20 have it till 2020. I'm discussing here -- this is
21 this -- I think the main point of this
22 paragraph -- another run-on paragraph, sorry -- is
23 to make the argument that I control for things
24 that go into peer groups.

25 But I am making the observation that

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2 it's hard to extract a real definitive statement
3 about what goes into peer groups. People are
4 saying different things. I don't have any -- I've
5 never seen like a table, a chart.

6 And when people are listing different
7 things, I don't know if they're actually telling
8 us everything they know or telling us three of the
9 things they recall. I'm listing all the things
10 they mention, and say I control for those.

11 Q. But it's not essential to have a
12 statement of logic, then, for each of the control
13 variables that you use, or is it?

14 A. All -- I am hedging here. If someone
15 said definitively peer groups are based on
16 variables X, Y, and Z, then I could say
17 definitively since I control for variables X, Y, Z
18 and Z I can control for all the things that make
19 peer groups.

20 I'm saying -- I think the flavor is I'm
21 pretty close to that, but it's a little hard to be
22 definitive. Logic -- "fact" may be a better a
23 word, the logic here, I suppose. But I don't
24 have -- because I don't have that definitive
25 statement, I'm making that clear.

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2 Nonetheless, I show regressions -- here
3 we go. I mention positions in paragraph 9(g), but
4 I don't say anything there. This is where Zoom
5 depositions are good because you can do an
6 electronic search.

7 Anyways, I do remember -- even if I
8 can't find it now and I might not have cited it --
9 testimony that positions did not get attention in
10 thinking about the jobs people did. Nonetheless,
11 I do a sensitivity, a robustness analysis, and
12 show that controlling for position doesn't change
13 things. That's in Table --

14 Q. Yep.

15 A. -- A-3 and in fact controlled for
16 position -- at least for the New York class leads
17 to larger gender gaps and hence would lead to
18 larger damages if I included it.

19 Q. What led you to conduct a sensitivity
20 test on position?

21 A. So basically I do -- I do a bunch
22 right? I do -- I talk about here. I do position,
23 I do peer group, I do prior performance score.
24 That's not the whole list, maybe.

25 Essentially when I thought there was an

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2 either ambiguity in the record or just kind of a
3 good reason -- positions sound like horizontal
4 differentiation of jobs. I may in fact -- I
5 simply don't remember -- have started out by
6 including them. But there was testimony that
7 said -- you know, really profiles is the
8 descriptive information they rely on.

9 So that was my choice of sensitivity in
10 a sensitivity or robustness analysis. And, again,
11 Dr. Martin raised a few more points, and I added
12 some more of those for the same logic.

13 ATTORNEY BATTEN: This is a good spot
14 to break, so why don't we take our lunch now.

15 THE VIDEOGRAPHER: Off the record at
16 1300. Ending media unit number 3.

17 (Time noted: 1:00 p.m.)
18
19
20
21
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24
25

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2 Q. What does that mean?

3 A. That there's not -- this kind of goes
4 back to our discussion I think was the last thing
5 we were discussing before lunch about whether if
6 there are different policies across units you
7 might -- you might not necessarily want to
8 aggregate across them or you might at least
9 explore the consequence of not doing it.

10 So I'm just saying why I'm not
11 disaggregating by cost center.

12 Q. But why is it relevant control if it
13 doesn't play a role in compensation anyway?

14 A. Because rate -- because there's
15 documents and testimony that amount available for
16 raises can vary by cost center and that in my
17 supplemental tables -- they were included in a
18 form in this report. I didn't really talk about
19 them.

20 But in the supplemental table I more
21 explicitly test for that and show that they do
22 matter, although you can see that in A-4 here as
23 well.

24 Q. And the documents that you're referring
25 to about cost center are those that are cited in

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2 Note 77; is that right?

3 A. I think it's the -- I think it's -- I
4 think it's the first and the third -- oh, sorry,
5 there's only two. Yes, those exhibits and --
6 those documents, yes.

7 Q. Other than the testimony and the
8 documents that are cited in Note 77, did you rely
9 on any other evidence to conclude that different
10 cost centers may have different amounts available
11 for raises?

12 A. So I said two things. When I wrote the
13 report, this is what I cited. As I said, I
14 didn't -- whether -- I just don't remember whether
15 I read other depositions that said the same thing.
16 And I don't cite them all; I just cite enough to
17 make the case, if I think it's clear.

18 I don't remember whether others
19 testified to that. And subsequent to the report
20 in responding to Dr. Martin, I looked more
21 explicitly at the data and testing for the
22 significance of cost centers in the regressions,
23 and they clearly matter strongly.

24 Q. And in doing supplemental tables in
25 response to Dr. Martin's analysis, did you review

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2 Q. Did you consider controlling for cost
3 center in 2017 and 2021 but not the other years?

4 A. No.

5 Q. Why not?

6 A. You know, the fact that I -- I mean, I
7 never know exactly why the documents that surface
8 surface. I'm not involved in this process; right?
9 I get handed things. I think I'm handed
10 everything -- I hope so -- that's relevant.

11 You know, the fact that I see this for
12 two years and no one says it didn't happen the
13 other years doesn't give any me any reason it
14 doesn't happen in other years. But that's my only
15 explanation. I simply didn't do, nor does Martin.

16 Q. But why is the default that if you're
17 not sure then it must have been included rather
18 than the absence of a document suggesting it
19 wasn't?

20 A. Well, so first of all, for the years --
21 for the years in which I have information, it
22 wasn't -- it did matter. And second of all, you
23 know, adding controls -- the worst that can happen
24 from adding controls that maybe someone thinks
25 don't belong in the model, as long as they're not

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2 tainted, bad models -- and that's not I don't
3 think any of the discussion here or from Martin
4 about cost center controls -- is you reduce
5 precision a little bit.

6 . Extraneous -- I mean, that's a
7 standard econometrics textbook result that, you
8 know, truly extraneous variables just reduce the
9 precision of the estimates or increase the
10 standard deviations.

11 I have them in, so I'm not worried
12 about that. If anything, I'm being less precise
13 than I could be by including them. There's no --
14 there's no bias from including them. The
15 coefficients might be zero if they don't matter at
16 all, and they clearly aren't.

17 Q. So is it not important to you to know
18 whether funding actually varied by cost center
19 before controlling for it?

20 A. Well, I mean, as I said, I can confirm
21 it, in my opinion, for two years, and there's a
22 reference to possibly other years. And, you know,
23 at the end of the day I can also look at the
24 regression and there's no harm to adding the
25 controls.

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2 So if you told me definitively or
3 assumed definitively these pools were identical
4 for the other two years, I don't -- that's -- it's
5 not clear I would do anything differently anyways,
6 because I'm adding the controls; and if they won't
7 matter, they won't matter.

8 There's nothing -- it doesn't generate
9 bias in the estimated gender gap to include a
10 control that's not potentially influenced by
11 discrimination, which is what I mean by a tainted
12 or bad control.

13 Q. But you must have to have some
14 theoretical justification for the inclusion of a
15 control, generally speaking; right?

16 A. And I do.

17 Q. We'll come to that.

18 Like you wouldn't control for hair
19 color just because the data were available; right?

20 A. Believe, irrelevant or not, there's
21 research based on discrimination based on features
22 of hair, but I don't think I would call that
23 discrimination. It's not legal discrimination,
24 anyways.

25 Q. If you had data about hair color, you

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2 wouldn't include it as a control just because why
3 not; right?

4 A. Right.

5 Q. There has to be some theoretical basis,
6 you would agree?

7 A. Some -- a theoretical basis, other
8 evidence, which even might be without a theory. I
9 don't know if you would call this theoretical
10 evidence or some other evidence, but some
11 indication that it matters.

12 (Discussion off the record.)

[REDACTED]

[REDACTED]

18 Q. Well, you already control for business
19 unit -- right? -- apart from cost center?

20 A. Uh-huh.

21 Q. And so why if these additional business
22 units are the ones that are getting increased
23 guidelines -- increased guideline increases, why
24 doesn't that make the cost center control
25 redundant?

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2 A. Again, we could -- you know -- I
3 suspect neither of us could interpret this
4 exactly, but, you know, to my mind it's not
5 entirely clear what this means. It mentions cost
6 centers. It mentions business units.

7 Again, if they were truly redundant, I
8 would not find strong significant effects of cost
9 center, and I do. That's the bottom line that
10 is -- I don't know how you ignore that evidence;
11 or, you know, given the regression evidence that
12 cost center plays a large role in these
13 regressions, what motivation there possibly is for
14 excluding them and saying that's more reliable
15 evidence. That escapes me completely.

16 Q. Well, aren't there all kinds of
17 variables that could theoretically have
18 statistical significance even though there's no
19 theoretical relationship to compensation?

20 A. No -- well, you might be -- there's a
21 lot of things that theoretically could have an
22 effect on compensation. You mentioned hair color
23 before. I would guess if I put it in it wouldn't
24 matter. There's research on lookism. So if
25 people thought certain hair color is better

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2 that could be -- that should be included in the
3 model; right?

4 A. I would sort of yes, but I would be
5 shocked if that showed up as significant
6 regression. Based on what I'm seeing, I'm not
7 shocked that cost center showed up as significant
8 regression.

9 Q. How about the day of the month that an
10 individual was hired 1 through 31? There's a lot
11 of data on that for every employee in every
12 employee year I guess in the model. Should that
13 be included if it shows a joint significance?

14 A. Well, that could matter for lots of
15 reasons, like timing of bonuses, prorating of
16 bonuses.

17 Q. The day of the month?

18 A. When you got hired and the year, the
19 date.

20 Q. In subsequent years?

21 A. I mean, I wouldn't expect it -- it
22 wouldn't expect that to matter.

23 Q. But what if it did?

24 A. Then I would stop and think about it
25 before I said you should leave it out. I wouldn't

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2 say I'm sure it shouldn't be there, especially if
3 there's a document that admittedly -- this one,
4 not the other one -- is perhaps subject to
5 interpretation and suggests it should be in there.

6 Q. Well, suppose you don't have such
7 document but the variable it nevertheless turns
8 out mathematically has a joint significance value
9 of 0.00. Should that variable be included despite
10 the lack of any theoretical basis for it?

11 A. I don't think there's a one-size-
12 fits-all answer. I mean, people discover things
13 in data and then it turns out we construct
14 theories of why they do matter.

15 So people -- people didn't use to put
16 schooling in wage regressions before the human
17 capital model. I don't -- I don't literally know
18 the evolution of did someone run the regression
19 first to come up with a theory first, but now it's
20 standard.

21 Q. Well, can you think of a basis for my
22 day of the month example that would make it a
23 relevant variable?

24 A. That would persist in other years? No.

25 Q. You said you don't have a mapping of

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2 A. Yes.

3 Q. Did you personally prepare these
4 tables?

5 A. Did I type them? No. But I personally
6 controlled the content of them.

7 Q. Did EconOne actually prepare the
8 charts?

9 A. Yeah, they actually run the regressions
10 and usually output the numbers in the tables, and
11 then I edit the death out of them.

12 Q. Did anyone assist you other than
13 EconOne's role in preparing these tables?

14 A. No.

15 Q. And were each of the items in the
16 tables substantively your ideas?

17 A. Yes.

18 Q. So can you explain what you did in
19 supplemental Table 1?

20 A. Sure. So Dr. Martin pointed out that
21 there were -- she didn't say the number. It
22 turned out there were I think 89 of them.

23 She pointed out there were cases
24 where -- we sort of discussed this before --
25 someone was in a class position and then out of it

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2 and -- and I think that could be either because of
3 job profile or country -- and then was back in it;
4 and that I had inadvertently -- if you were, say,
5 in the class of 2019, out in '20, and back in '21,
6 I inadvertently mapped the '21 bonus back a year.
7 So that was an error based on what is -- well,
8 yeah, based on understanding of the data.

9 So what you have here is you have the
10 same four periods -- New York, U.S., et cetera --
11 like you have before. You have base pay total
12 comp like before. You have added to here now what
13 I mentioned the cost center joint significance
14 test.

15 And then first row of each panel is
16 what was from my report. Model 1 is I -- what I
17 say is I correct for the gap year bonus
18 assignment, that is, I just -- if it was missing
19 for a year, I just treat it as zero instead of
20 assigning the bonus from the next year.

21 And as I then thought about this, I
22 thought it's not clear that's the right thing to
23 do because -- I think we were discussing before I
24 work in, let's say, New York till some point in
25 the year, I go to London, there's a bonus in

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2 pounds, presumably decided on, certainly paid out
3 at least in London, I assume -- I assume based on
4 my work there. Does it really make sense to call
5 that U.S. pay for the year to which it applies.

6 I honestly don't have a firm answer and
7 haven't seen one about exactly how bonuses get
8 determined and is it based on -- hypothetically it
9 could be based on your performance before you
10 left. That doesn't seem that plausible. It could
11 be based on your performance where you are now.
12 It could is be based on some combination. I don't
13 know.

14 So I do some alternatives. What I call
15 V2 is sort of saying I don't know how to treat
16 bonuses, so I just exclude those years rather
17 than -- rather than assigning the wrong one where
18 it says wrong one we're assigning zero NV3, NV4.
19 And you can see that's why the sample in each case
20 gets a little smaller in that case. That's the
21 set of gray highlighted rows.

22 And two alternatives, I don't really
23 know what's right. I don't like these as much.
24 But since I don't know exactly what's right, I do
25 these. I exclude the bonus, but I put in a dummy

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2 variable for those years which will sort of pick
3 up the fact that you don't have a bonus --
4 right? -- which could help explain why your total
5 comp is lower.

6 And then I alternatively include the
7 bonus, but I also include a dummy because, again,
8 the bonus could be different because it's being
9 made in -- either in a different location or for a
10 different job and possibly some unknown hybrid of
11 the two -- the two positions you held.

12 Q. So do I understand correctly that you
13 don't have enough information to choose between
14 V2, V3, and V4?

15 A. Yes. I would say I view -- I view --
16 why do I prefer V2? V2 is just leaving out some
17 data, but there's no sense that I'm using the data
18 incorrectly. V3 and V4 I use a little more data
19 because I keep the year and in one case I keep the
20 bonus.

21 But I realize I don't have a full
22 understanding of whether the sort of bonus
23 determination for these -- this handful of
24 observations -- and you can see the differences, a
25 bit less than 100 -- exactly how the bonus gets

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2 determined in those cases.

3 Q. Going back a little bit, for V1 --

4 A. Yes.

5 Q. -- you mention in the notes with
6 respect to V1 an employee who left to foreign
7 country -- I assume that's left to go to a foreign
8 country --

9 A. Yeah.

10 Q. -- and return to the U.S.?

11 A. So you had a year or it could be longer
12 where you were working somewhere else and then
13 came back.

14 Q. Does this correction for V1 also
15 include employees who moved in and out of class
16 job profiles?

17 A. Yeah, that's an e.g. So those are the
18 two reasons which -- well, if there was something
19 written, it would have said that. Yes, it's both.
20 That's why it says e.g. It would have been clear
21 to write both cases.

22 Q. Maybe you answered this next question
23 in a prior answer; and if so, I apologize. But
24 Dr. Martin had noted in her report that if an
25 employee moved from New York in 2019 to London in

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2 reasons why I think that might be the case. They
3 have nothing to do with data, of course.

4 Q. It's all the stuff we talked about
5 earlier today about annual funding and so forth?

6 A. There's nothing else underlying this
7 than that discussion and the actual statistical
8 results, correct.

9 Q. In your original report, you conducted
10 a number of sensitivity tests, and I think you
11 told me earlier today you chose to do such a test
12 wherever there was an ambiguity or some other good
13 reason to do one; is that fair?

14 A. I said something like that, yes, yes.

15 Q. Did you not think during the original
16 report that a sensitivity test on cost center
17 would be appropriate?

18 A. I clearly didn't then or I would have
19 done it. So, no, I did not. I thought -- I
20 viewed the deposition testimony and related stuff
21 as pretty unambiguous.

22 Q. And was there any point in doing a
23 sensitivity test for your supplemental tables on
24 cost center?

25 A. I mean, nothing -- my opinion on that

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2 hasn't changed. Obviously the Martin report is
3 there for the record. But my opinion about the
4 appropriateness, including or excluding, hasn't
5 changed.

6 Q. Did Dr. Martin effectively conduct a
7 sensitivity test on cost centers? Is that a fair
8 description of what she did?

9 A. As she describes it, no. She says it's
10 the only right thing to do. That is how I read
11 her report.

12 Q. What's a wall test?

13 A. So a wall -- a joint hypothesis test,
14 we were just describing -- this is probably more
15 than you want to know --

16 Q. Probably, but give it to me anyway.

17 A. There are three ways to do a joint
18 hypothesis test. A likelihood ratio test is based
19 on the null model, that is, you estimate the model
20 without the coefficients -- without the variables
21 included, and you can construct a test statistic
22 based on that.

23 An F test you estimate the model with
24 the variables included, and you test on that
25 model.

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2 Q. And I assume you would give the same
3 answer as to (b) and (c) of paragraph 51?

4 A. Correct.

5 Now you're moving backwards instead of
6 forward.

7 Q. Yeah, that's right. I'm as forward as
8 I can go, so I can only go backwards.

9 A. No problem.

10 Q. And bear with me a second, because some
11 of these things we've already talked about and I
12 don't want to repeat.

13 A. No problem.

14 (Pause.)

15 Q. Let's go to paragraph 14, please.

16 A. 14?

17 Q. Uh-huh.

18 A. Okay.

19 Q. Do you agree that if peer group is
20 added in the sensitivity test that you did the
21 results for total compensation are not significant
22 at the 5 percent level?

23 A. So why don't we look to the new tables
24 just to have what I agree on. So this is Table 3.
25 I lost my place. Sorry -- well, actually, so

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2 she's making a statement about my report, so I
3 guess it makes more sense to look at my report.
4 A-3.

5 So she is referring to model 4
6 specifically. So just to clarify, there's two
7 ways I deal with peer group, as we discussed.
8 One, I included dummies for it and a catchall for
9 the -- in this panel A many cases where I don't
10 have it and model 4 which she references where I
11 am missing it for roughly 80 percent of the
12 sample.

13 So that -- she is referring to the
14 standard deviation of the T statistic. It falls
15 from above 2 in let's say the first row to 1.87
16 for base pay, 1.91 for total comp. So those are
17 both significant at the 10 percent level, not the
18 5 percent level.

19 I do think it's critical to point
20 out -- and she doesn't, which doesn't surprise
21 me -- that the estimates -- the estimated gaps are
22 the same or bigger; right? So for base pay, 3.7,
23 3.7, and for total comp it actually goes up from
24 4.0 to 4.3.

25 Almost for sure, let me say, the --

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2 because the gap is actually getting bigger, the
3 only reason the standard deviations or what I call
4 the T statistic is falling is because you have a
5 lot fewer observations, because that count
6 actually shows up in the formula.

7 So this is a case where I would say,
8 you know, if you think peer group belongs in the
9 model, you believe that, you know, model with peer
10 group is more reliable. When you do it, the point
11 estimate is bigger, that is, the gender gap is
12 bigger, the damages were actually bigger. But
13 obviously you can't estimate that for the full
14 sample because you don't have it. You do for New
15 York.

16 In fact in every -- in my new table,
17 Table 3, if I'm not mistaken, in every single case
18 where you do that comparison, the gender gap is
19 bigger when I include peer group, like in what is
20 called model 4 there, only where available.

21 So I would take that as pretty strongly
22 confirming evidence. I would be hard-pressed, I
23 think, to believe a reasonable labor economist to
24 say -- and now I'm looking at my new Table 3 --
25 when the estimate goes from 4.2 percent to 4.7

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2 percent -- well, there it remains significant.

3 But even if it fell below 5 percent in
4 significance level but the estimate actually got
5 bigger, that a labor economist wouldn't say that's
6 evidence of a robust negative relationship and you
7 shouldn't pay attention to the decline in standard
8 deviations from the much smaller sample.

9 Q. I think you referred to this earlier.
10 If you move to paragraph 26 of Dr. Martin's
11 report.

12 A. 26.

13 Q. This is the analysis that she does of
14 producer job profiles.

15 A. Yes.

16 Q. I think you said earlier today you
17 disagreed with that approach?

18 A. I don't remember exactly what I said,
19 but I have a lot of trouble understanding the
20 motivation for this approach, I think is closer to
21 what I said, but that's what I mean otherwise.

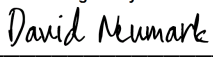
22 Q. I didn't mean to put words in your
23 mouth; I just wanted to return to the topic.

24 A. Yeah.

25 Q. Describe, if you will, your criticism

Page Number	Line Number	Original Text	Corrected Text	Reason
230	11	applicants posting	applicants, posting	“ ”
230	14	hires.	applies.	Misspoke
230	23	Labor Markets.	in Labor Markets.	Transcription/ typographical error
231	22	freakonomics	Freakonomics	“ ”
234	5	deep	dependent	“ ”
234	6	pays	pay is	“ ”
234	14	are partial list,	are – partial list --	“ ”
236	15	pay 3	pay -- 3	“ ”

Date: 12/2/2024 | 12:31 PM PST

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 David Neumark